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Claim Amendments

Please amend claims 1, 15, 26, and 30 as follows:

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Listing of Claims

1. (currently amended) A method for selectively ~~altering a thickness of planarizing~~ a radiation sensitive polymer layer to improve a subsequent etch process comprising the steps of:

providing a substrate comprising a first density of semiconductor features and a second density of semiconductor features wherein said first density is greater than said second density;

forming at least one radiation sensitive polymer layer having a first thickness topography to cover said semiconductor features;

determining a thickness of the first thickness topography;

exposing the at least one radiation sensitive polymer layer through a mask having a predetermined radiant energy transmittance distribution to selectively expose said polymer layer over said second density of semiconductor features to a different radiant energy dosage compared to said polymer layer over said first density of semiconductor features;

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developing the at least one radiation sensitive polymer layer to [[to]] produce a second thickness topography wherein said second thickness topography covers said semiconductor features and has a higher degree of planarity than said first thickness topography; and,

then performing an etchback process to produce a third thickness topography.

2. (original) The method of claim 1, wherein the predetermined radiant energy transmittance distribution is determined according to the first thickness topography.

3. (original) The method of claim 2, wherein the first thickness topography is determined according to one of profilometry or interferometry or scanning electron microscope.

4. (original) The method of claim 1, wherein the step of exposing produces a differential material removal rate in the step of developing according to the predetermined radiant energy transmittance distribution.

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5. (previously presented) The method of claim 4, wherein the step of developing is selected from the group consisting of ablation, vaporization, self-development, baking, and chemical dissolution.

6. (original) The method of claim 1, wherein the mask comprises subresolution features with a predetermined density distribution.

7. (previously presented) The method of claim 6, wherein the subresolution features are selected from the group consisting of lines, holes and islands.

8. (previously presented) The method of claim 1, wherein the mask comprises semitransparent areas with a predetermined density distribution.

9. (cancelled)

10. (previously presented) The method of claim 1, wherein the semiconductor features comprise at least one of surface protruding and surface penetrating features.

11. (previously presented) The method of claim 10, wherein the surface penetrating features comprise at least one of Via

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openings and trench openings.

12. (original) The method of claim 10, wherein the surface protruding features comprise at least one of gate electrodes and metal lines.

13. (previously presented) The method of claim 1, wherein the step of exposing is selected from the group consisting of alignment, stepping, and scanning.

14. (previously presented) The method of claim 1, wherein the step of exposing is selected from the group consisting of a step and repeat method, a mirror projection alignment method, a proximity alignment method, a contact alignment method, and a step and stitch exposure method.

15. (currently amended) A method for selectively ~~altering a thickness of planarizing~~ a radiation sensitive polymer layer to improve a subsequent etchback process comprising the steps of:

providing a semiconductor wafer having a process surface comprising a first density of via openings and a second density of via openings formed in a dielectric layer, said first density

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greater than said second density;

blanket depositing a radiation sensitive polymer layer to fill and cover said vias at a first thickness;

determining a thickness topography of the radiation sensitive polymer layer;

determining a desired radiant energy dosage to deliver to portions of the radiation sensitive polymer layer to [[to]] produce a subsequent planarized thickness topography of the radiation sensitive polymer layer;

providing an exposure mask for delivering the desired radiant energy dosage;

selectively exposing portions of the radiation sensitive polymer layer through the exposure mask to deliver the desired radiant energy dosage including a relatively higher radiant energy dosage to an area of said polymer layer overlying said second density;

developing the radiation sensitive polymer layer to produce

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the subsequent planarized thickness topography wherein said planarized thickness topography comprises a thickness portion above and covering said vias; and,

then performing an etchback process to form via plugs at least partially filling said vias.

16. (previously presented) The method of claim 1, wherein the step of exposing produces differential radiation sensitive polymer layer thickness change rates in the step of developing according to the desired radiant energy dosage.

17. (previously presented) The method of claim 15, wherein the step of developing is selected from the group consisting of ablation, vaporization, self-development, baking, and chemical dissolution.

18. (original) The method of claim 15, wherein the exposure mask comprises subresolution features with a predetermined density distribution.

19. (original) The method of claim 15, wherein the exposure mask comprises semitransparent areas with a predetermined density

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distribution.

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (previously presented) The method of claim 15, wherein the steps of determining a thickness topography through the step of developing the radiation sensitive polymer layer are repeated to form said subsequent planarized thickness topography.

26. (currently amended) The method of claim 1, wherein the etchback process produces via plugs at least partially filling vias, said vias formed in a dielectric layer.

27. (previously presented) The method of claim 1, wherein said first thickness is within a thickness window to produce a linear



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change in thickness with respect to said predetermined radiant energy transmittance distribution in the step of developing.

28. (cancelled)

29. (previously presented) The method of claim 15, wherein said first thickness is within a thickness window to produces a linear change in thickness with respect to said desired radiant energy dosage in the step of developing.

30. (currently amended) A method for selectively ~~altering a thickness of~~ planarizing a radiation sensitive polymer layer to improve a subsequent etchback process comprising the steps of:

providing a substrate comprising semiconductor features;

forming a radiation sensitive polymer layer having a first thickness topography to cover said semiconductor features; said first thickness topography within a thickness window sufficient to produce a linear change in thickness with respect to a desired radiant energy dosage in a subsequent development process;

then measuring said first thickness topography;

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then determining said desired radiant energy dosage of said polymer layer;

then exposing the polymer layer through a mask to provide said desired radiant energy dosage; and,

then developing the at least one radiation sensitive polymer layer in said subsequent development process to produce a second thickness wherein said second thickness topography has a higher degree of planarity than said first thickness topography.

31. (previously presented) The method of claim 30, further comprising a etchback process to form a third thickness topography.